



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/000,415	11/02/2001	Thomas Kolze	13199US02	9101

23446 7590 08/31/2006

MCANDREWS HELD & MALLOY, LTD
500 WEST MADISON STREET
SUITE 3400
CHICAGO, IL 60661

EXAMINER

KUMAR, PANKAJ

ART UNIT PAPER NUMBER

2611

DATE MAILED: 08/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

5

Office Action Summary	Application No. 10/000,415	Applicant(s) KOLZE ET AL.	
	Examiner Pankaj Kumar	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21-24 and 34-45 is/are allowed.
- 6) ☒ Claim(s) 18, 19, 25-27 and 31 is/are rejected.
- 7) ☒ Claim(s) 20, 28-30, 32 and 33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Response to Amendment

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 18, 19, 25, 27, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chennakeshu in view of Webster's dictionary and Stewart USPN 5,671,253.
4. As per claim 18: A method of impairment mitigation in a communications system comprising: generating at least one error estimate of a signal (not in Chennakeshu but would be obvious as explained below); determining a channel fidelity metric using the at least one error estimate (Chennakeshu fig. 1: 4a,b; fig. 3: 32 calculate signal to impairment ratio (SIR) and thus this ratio is the claimed metric; col. 8 line 57: SIR metrics); generating a branch metric for a decoder (Chennakeshu col. 10 lines 48-53; eq. 5); modifying the branch metric based on the channel fidelity metric (Chennakeshu eq. 5 branch metric is modified based on SIR; col. 10 lines 51-53), and decoding the signal using the modified branch metric (Chennakeshu col. 10 lines 66, 48-51, 51-67).

Art Unit: 2611

5. Chennakeshu does not teach fidelity. Webster's dictionary teaches fidelity as being an accuracy in details in definition 1b under fidelity on page 432. Chennakeshu's signal to impairment ratio is a measure of accuracy in details. Thus, it would have been obvious, to one of ordinary skill in the art, at time the invention was made, to arrive at the fidelity as recited by the instant claims, because the combined teaching of Chennakeshu with Webster's dictionary suggests fidelity as recited by the instant claims. Furthermore, one of ordinary skill in the art, would have been motivated to combine the teachings of Webster's dictionary with Chennakeshu because Chennakeshu suggests measure of impairment (something broad) in general and Webster's dictionary suggests having fidelity provides the beneficial use of having accuracy in details in the analogous art of accuracy or error estimate.

6. Chennakeshu does not teach generating at least one error estimate of a signal. Stewart 5671253 teaches generating at least one error estimate of a signal (Stewart fig. 5: 270). Thus, it would have been obvious, to one of ordinary skill in the art, at time the invention was made, to arrive at generating at least one error estimate of a signal as recited by the instant claims, because the combined teaching of Chennakeshu with Stewart suggests generating at least one error estimate of a signal as recited by the instant claims. Furthermore, one of ordinary skill in the art, would have been motivated to combine the teachings of Stewart with Chennakeshu because Chennakeshu suggests calculating signal impairment ratio which involves error and quality (something broad) in general and Stewart suggests calculating errors provides the beneficial use of calculating signal quality (Stewart fig. 5: 275) which is also equivalent to channel fidelity in the analogous art of signal processing.

Art Unit: 2611

7. As per claim 19: The method of claim 18 wherein the decoder is a Viterbi decoder (Chennakeshu col. 10 lines 48-49).

8. As per claim 25, Stewart teaches Reed-Solomon decoder (Stewart fig. 1: 110 is part of 10 which demodulator 10 feeds into from fig. 5).

9. As per claim 27: The method of claim 18 wherein the decoder is a FEC decoder (Chennakeshu col. 10 lines 48-49; applicant's background of the invention in paragraph 07 teaches Viterbi as a form of FEC).

10. As per claim 31, Chennakeshu in view of Webster's dictionary and Stewart teaches the method of claim 18 wherein the channel fidelity metric comprises comparing the at least one error estimate to at least one predetermined threshold (Chennakeshu col. 6 line 30).

11. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chennakeshu in view of Webster's dictionary, Stewart and Kavcic USPN 6,438,180.

12. As per claim 26, Chennakeshu in view of Stewart teaches the method of claim 18. Chennakeshu in view of Stewart does not teach turbo decoder. Kavcic 6438180 teaches turbo decoder (Kavcic figs. 14, 15) with metric modifying. Thus, it would have been obvious, to one of ordinary skill in the art, at time the invention was made, to arrive at turbo decoder as recited by the instant claims, because the combined teaching of Chennakeshu and Stewart with Kavcic suggests turbo decoder as recited by the instant claims. Furthermore, one of ordinary skill in the art, would have been motivated to combine the teachings of Kavcic with Chennakeshu and Stewart because Chennakeshu and Stewart suggests decoding (something broad) in general and Kavcic suggests the beneficial use turbo decoding such as achieving a higher coding gain

Art Unit: 2611

(Kavcic col. 2 lines 1-2) in the analogous art of signal processing. Also, it is a matter of design choice as to the decoder type used.

Allowable Subject Matter

13. Claims 20, 28-30, 32, 33 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

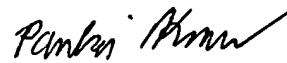
14. Claims 21-24, 34-45 are allowed. See a prior action for details.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pankaj Kumar whose telephone number is (571) 272-3011. The examiner can normally be reached on Mon, Tues, Thurs and Fri after 8AM to after 6:30PM.

16. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

17. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Pankaj Kumar
Primary Examiner
Art Unit 2611

PK